

Work Order ID 136766

\*136766\*

Page 1

Friday, September 04, 2015 10:06:05 AM

Item ID: D6101-007 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Saddle Billet  
 Start Date: 9/4/2015 Start Qty: 40.00 \*40\* Cust Item ID:  
 Required Date: 9/4/2015 Req'd Qty: 40.00 \*40\* Customer:  
 Reference:

Approvals: Process Plan: MLS Date: SEP 04 2015 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr | Revision Nbr |
|----------|--------------|
| D6101    | Rev B        |

|     |            |      |  |  |  |  |  |  |  |
|-----|------------|------|--|--|--|--|--|--|--|
| 100 | PURCHASING | 0.00 |  |  |  |  |  |  |  |
|-----|------------|------|--|--|--|--|--|--|--|

\*100\* Purchasing  
 Purchasing  
 Memo  
 Issue P/O: 29713  
 a) Description: Alluminum billet  
 b) 7.750" x 8.250" x 2.50" thick  
 c) Tolerance on all dimensions are +0.030"/-0.000"  
 d) Grain direction along 7.750" length  
 e) Material: 7075-T7351 (QQ-A-250/12)  
 f) Material certification required

|     |                                            |      |  |  |  |  |  |  |  |
|-----|--------------------------------------------|------|--|--|--|--|--|--|--|
| 110 | Receive & Inspect for Damage & Mat'l Certs | 0.00 |  |  |  |  |  |  |  |
|-----|--------------------------------------------|------|--|--|--|--|--|--|--|

\*110\* Packaging  
 Packaging  
 Memo  
 Ensure material certification is attached

CZ SEP 08 2015 40

40X SP 15-09-23

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MRB (QSI042) Approval                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed By                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lead hand / Supervisor Approval Verification                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QC / QA Coordinator Approval                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | Pressure/Forced <input type="checkbox"/><br>Bending <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/><br>Cracks <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/><br>Cuffs <input type="checkbox"/><br>Crushing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Temperature/Cure <input type="checkbox"/><br>Set-up <input type="checkbox"/><br>BOM/Route <input type="checkbox"/><br>Broken/Damage/Defect <input type="checkbox"/><br>Inspection Incomplete/Unqualified <input type="checkbox"/><br>Contamination <input type="checkbox"/><br>Countersink <input type="checkbox"/><br>Cut Too Short <input type="checkbox"/><br>Instructions Incomplete/Unclear <input type="checkbox"/><br>Drill Holes <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/><br>Folio/Program <input type="checkbox"/><br>Grain <input type="checkbox"/><br>Weld <input type="checkbox"/><br>Wrong Stock Pulled <input type="checkbox"/><br>Out of Sequence <input type="checkbox"/><br>Off-set <input type="checkbox"/><br>Misabeled <input type="checkbox"/><br>Fit/Function <input type="checkbox"/><br>Misaligned/off center <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/><br>Outside Dimensions <input type="checkbox"/><br>Over/Under tolerance <input type="checkbox"/><br>Part Incorrect <input type="checkbox"/><br>Part Lost/Missing <input type="checkbox"/><br>Part Moved <input type="checkbox"/><br>Drawing <input type="checkbox"/><br>Finish <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/> |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |

Work Order ID 136766

\*136766\*

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Friday, September 04, 2015 10:06:05 AM

Item ID: D6101-007 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Saddle Billet  
 Start Date: 9/4/2015 Start Qty: 40.00 \*40\* Cust Item ID:  
 Required Date: 9/4/2015 Req'd Qty: 40.00 \*40\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description                          | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp                |
|--------------------------------|---------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|-------------------------------|
| 120                            | QC6- Inspect dimensions to drawing                | 0.00                 |         |        |              | 40            | 10            |                  | DAS<br>14<br>9-89<br>15/09/29 |
| *120*                          |                                                   |                      |         |        |              |               |               |                  |                               |
| QC                             | Memo                                              | 0.00                 |         |        |              |               |               |                  |                               |
| Quality Control                | Ensure Material certification comply to Dwg D6101 |                      |         |        |              |               |               |                  |                               |
| 130                            | Identify as per dwg & Stock Location: MAT041      | 0.00                 |         |        |              | 40            | 10            |                  | DAS<br>14<br>9-89<br>15/09/29 |
| *130*                          |                                                   |                      |         |        |              |               |               |                  |                               |
| Packaging                      | Memo                                              | 0.00                 |         |        |              |               |               |                  |                               |
| Packaging                      | LOCATION: MAT044                                  |                      |         |        |              |               |               |                  |                               |
| 140                            | QC21- Final Inspection - Work Order Release       | 0.00                 |         |        |              |               |               |                  |                               |
| *140*                          |                                                   |                      |         |        |              |               |               |                  |                               |
| QC                             | Memo                                              | 0.00                 |         |        |              |               |               |                  |                               |
| Quality Control                |                                                   |                      |         |        |              |               |               |                  |                               |

ML5 SEP 29 2015  
 20150929  
 JH

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                 |  |
|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|-----------------------|-------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |                                               |  |                       |                                                 |  |
| Date :                                                       |                                                | Step #:                                                                                                                                                                            |                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  | MRB (QS1042) Approval |                                                 |  |
| Description Work Order Deviation                             |                                                |                                                                                                                                                                                    |                                                            | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |  |                       | Completed By                                    |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       | Lead hand / Supervisor<br>Approval Verification |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       | QC / QA Coordinator<br>Approval                 |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                 |  |
| <b>Root Cause</b>                                            |                                                | <b>FAULT CATEGORY</b>                                                                                                                                                              |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                 |  |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Positioned Wrong <input type="checkbox"/>     |  |                       |                                                 |  |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Outside Dimensions <input type="checkbox"/>   |  |                       |                                                 |  |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Over/Under tolerance <input type="checkbox"/> |  |                       |                                                 |  |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Part Incorrect <input type="checkbox"/>       |  |                       |                                                 |  |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Lost/Missing <input type="checkbox"/>    |  |                       |                                                 |  |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Part Moved <input type="checkbox"/>           |  |                       |                                                 |  |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Drawing <input type="checkbox"/>              |  |                       |                                                 |  |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Finish <input type="checkbox"/>               |  |                       |                                                 |  |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Misread <input type="checkbox"/>              |  |                       |                                                 |  |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Turning Sequence <input type="checkbox"/>     |  |                       |                                                 |  |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/> |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                 |  |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>              | OTHER : _____                                                                                                                                                                      |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                 |  |

# Picklist Print

Friday, September 04, 2015 10:06:07 AM

Page 1

Work Order ID: 136766

**\*136766\***

Parent Item: D6101-007

**\*D6101-007\***

Parent Item Name: Saddle Billet

Start Date: 9/4/2015

Required Date: 9/4/2015

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP A: 01.05.04New IssueC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D6101-007P                      |                        | Purchased     |             | No                  |                  | 110             | Each               | 0.0000         | 1           | 40           |               |                |        |

**\*D6101-007P\***

7075-T7351 8.25X7.75X2.5

**\*\***

40K 8P15-09-23

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



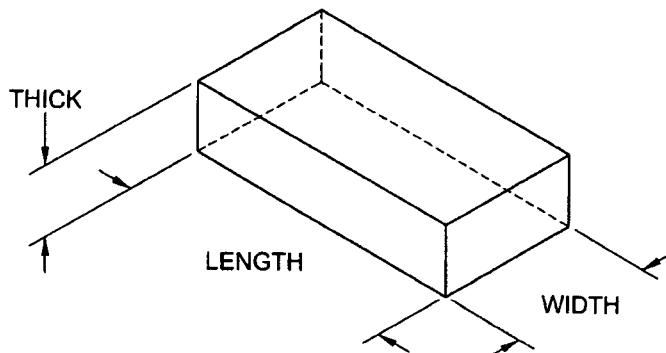
## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MRB (QSI042) Approval                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Completed By                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Lead hand / Supervisor<br>Approval Verification                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | QC / QA Coordinator<br>Approval                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | Pressure/Forced <input type="checkbox"/><br>Bending <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/><br>Cracks <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/><br>Cuffs <input type="checkbox"/><br>Crushing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Temperature/Cure <input type="checkbox"/><br>Set-up <input type="checkbox"/><br>BOM/Route <input type="checkbox"/><br>Broken/Damage/Defect <input type="checkbox"/><br>Inspection Incomplete/Unqualified <input type="checkbox"/><br>Contamination <input type="checkbox"/><br>Countersink <input type="checkbox"/><br>Cut Too Short <input type="checkbox"/><br>Instructions Incomplete/Unclear <input type="checkbox"/><br>Drill Holes <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/><br>Folio/Program <input type="checkbox"/><br>Grain <input type="checkbox"/><br>Weld <input type="checkbox"/><br>Wrong Stock Pulled <input type="checkbox"/><br>Out of Sequence <input type="checkbox"/><br>Off-set <input type="checkbox"/><br>Misabeled <input type="checkbox"/><br>Fit/Function <input type="checkbox"/><br>Misaligned/off center <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/><br>Outside Dimensions <input type="checkbox"/><br>Over/Under tolerance <input type="checkbox"/><br>Part Incorrect <input type="checkbox"/><br>Part Lost/Missing <input type="checkbox"/><br>Part Moved <input type="checkbox"/><br>Drawing <input type="checkbox"/><br>Finish <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/> |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |

# SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

**B** ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

| Part No.  | Alloy                    | Length | Width | Thick | Grain Direction    |
|-----------|--------------------------|--------|-------|-------|--------------------|
| D6101-001 | 7075-T7351 (QQ-A-250/12) | 6.000  | 6.250 | 2.000 | Along 6.000 Length |
| D6101-003 | 7075-T7351 (QQ-A-250/12) | 7.875  | 6.250 | 2.000 | Along 7.875 Length |
| D6101-005 | 7075-T7351 (QQ-A-250/12) | 5.000  | 8.250 | 2.500 | Along 5.000 Length |
| D6101-007 | 7075-T7351 (QQ-A-250/12) | 7.750  | 8.250 | 2.500 | Along 7.750 Length |
| D6101-009 | 7075-T7351 (QQ-A-250/12) | 8.700  | 8.250 | 2.500 | Along 8.700 Length |
| D6101-011 | 7075-T7351 (QQ-A-250/12) | 9.700  | 8.250 | 2.500 | Along 9.700 Length |
| D6101-013 | 7075-T7351 (QQ-A-250/12) | 10.100 | 8.250 | 2.500 | Along 10.10 Length |
| D6101-015 | 7075-T7351 (QQ-A-250/12) | 9.450  | 6.250 | 2.500 | Along 9.450 Length |
| D6101-017 | 7075-T7351 (QQ-A-250/12) | 6.350  | 6.250 | 2.250 | Along 6.350 Length |
|           |                          |        |       |       |                    |
|           |                          |        |       |       |                    |

**RELEASED**  
09/07/15/W

136766 MJS  
15-03-04

|                                                                                                                                                                                                                                                                          |                                     |                                                          |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------|----------|
| B                                                                                                                                                                                                                                                                        | ADDED D6101-015/-017, ADD ASTM B209 | RF                                                       | 09.04.23 |
| A                                                                                                                                                                                                                                                                        | NEW ISSUE                           | CP                                                       | 01.03.30 |
| REV.                                                                                                                                                                                                                                                                     | DESCRIPTION                         | BY                                                       | DATE     |
| DESIGN                                                                                                                                                                                                                                                                   | CP                                  | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |          |
| DRAWN                                                                                                                                                                                                                                                                    | RF                                  |                                                          |          |
| CHECKED                                                                                                                                                                                                                                                                  | <i>[Signature]</i>                  | DRAWING NO. D6101                                        |          |
| MFG. APPR.                                                                                                                                                                                                                                                               | <i>[Signature]</i>                  | REV. B<br>SHEET 1 OF 1                                   |          |
| APPROVED                                                                                                                                                                                                                                                                 | <i>[Signature]</i>                  | TITLE                                                    |          |
| DE APPR.                                                                                                                                                                                                                                                                 | <i>[Signature]</i>                  | SADDLE BILLET, 7075                                      |          |
| DATE                                                                                                                                                                                                                                                                     | 09.04.23                            | SCALE<br>NTS                                             |          |
| COPYRIGHT © 2001 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |                                     |                                                          |          |

**DART**  
AEROSPACE

Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO29713**

Purchase Order Date 9/8/2015

PO Print Date 9/8/2015

Page Number 2 of 3

**Order From :**

VU-MET002

METAUX CASTLE  
P.O. BOX 4090 STN A  
TORONTO, ONTARIO M5W OE9  
CANADA

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone**

**Ship To Contact**

**Ship To Phone**

**Ship Via:**

Yours ppd

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #**

10127-2607

**Terms**

Net 30

**Currency**

USD

**FOB**

Destination-Collect

**Line Total: \$855.00**

D6101-007P

7075-T7351  
8.25X7.75X2.5

9/24/2015

40.00

\$61.10

\$2,444.00

Yes

Each

9/24/2015

AS PER DWG D6101 REV. B

B136766

MATERIAL: 7075-T7351 (QQ-A-250/12)

SIZE: 7.750" X 8.250" X 2.50" THICK

GRAIN DIRECTION ALONG: 7.750" LENGTH

TOLERANCE AS PER QUOTE +.030"/-.000"

8015-09-23

**Line Total: \$2,444.00**

4 D6101-017P

ALUM BILLET

9/24/2015

10.00

\$64.75

\$647.50

Yes

Each

9/24/2015

AS PER DWG D6101 REV. B

B136767

SIZE: 6.350" X 6.250" X 2.250" THICK

GRAIN DIRECTION ALONG 6.350" LENGTH

MATERIAL: 7075-T7351 QQ-A-250/12

TOLERANCE AS PER QUOTE +.030"/-.000"

**Line Total: \$647.50**

**Note:**

9/8/2015



**Castle Metals®**

A. M. Castle &amp; Co.

PACKING SLIP/  
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:2733780

|                                                                                                                           |                         |                                                                                        |  |                                                                                         |  |                                                                                              |  |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|
| <b>Ship From:</b><br>A. M. Castle & Co.<br>TORONTO - CASTLE<br>METALS<br>2150 ARGENTIA ROAD<br>MISSISSAUGA, ON L5N<br>2K7 |                         | <b>Sold To:</b><br>DART AEROSPACE LTD<br>1270 ABERDEEN<br>HAWKESBURY, ON K6A 1K7<br>CA |  | <b>Ship To:</b><br>DART AEROSPACE LTD<br>1270 ABERDEEN<br>HAWKESBURY, ON K6A<br>1K7 CAN |  | <b>Deliver To:</b><br>DART AEROSPACE LTD<br>1270 ABERDEEN<br>HAWKESBURY, ON<br>K6A 1K7<br>CA |  |
| <b>Date Shipped</b><br>22-SEP-2015                                                                                        | <b>F.O.B.</b><br>ORIGIN | <b>Freight Terms</b><br>Prepaid                                                        |  | <b>Carrier</b><br>MANITOULIN                                                            |  | <b>BOL No</b><br>2733780-2                                                                   |  |

|                         |                                       |
|-------------------------|---------------------------------------|
| <b>Shipment Details</b> | <b>Final Destination Branch - TOR</b> |
|-------------------------|---------------------------------------|

|                                   |                     |                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                             |                                 |                                 |                    |                         |
|-----------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|--------------------|-------------------------|
| <b>Order No</b><br>4050922        | <b>Line No</b><br>2 | <b>Item No</b><br>752241.MO                                                                                                                                                                                                                                                            | <b>Description</b><br>2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000<br>CUT 2SIDED TO 8.25 IN ( + .0310/- .0000 IN (GRAIN TO RUN<br>ALONG 7.75")) X 7.75 IN ( + .0310/- .0000 IN (GRAIN TO RUN<br>ALONG 7.75")) - ALUMINUM PLATE SAW SPECIFICATIONS:<br>AMS-QQ-A-250/12 |                                 |                                 |                    |                         |
| <b>Purchase Order No</b><br>29713 |                     | <b>Part Number</b><br>YOUR ITEM NUMBER:<br>D6101-007                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                             | <b>Ordered Qty</b><br>40.00 PCS | <b>Invoice Qty</b><br>40.00 PCS |                    |                         |
| <b>Details</b>                    |                     | ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY<br>ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S<br>SHIP TO CASTLE, MONTREAL (POINTE-CLAIRE)<br>CUSTOMS BROKER: GEORGE H. YOUNG<br>END USER: DART AEROSPACE<br>END USE: COMMERCIAL AIRCRAFT PARTS |                                                                                                                                                                                                                                                                             |                                 |                                 |                    |                         |
| <b>Delivery No.</b>               | <b>Mill</b>         | <b>Heat Number</b>                                                                                                                                                                                                                                                                     | <b>Mech Id</b>                                                                                                                                                                                                                                                              | <b>PCS</b>                      | <b>Width (IN)</b>               | <b>Length (IN)</b> | <b>Shipped Qty(LBS)</b> |
| 120176788                         | KAISER<br>ALUMINUM  |                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                             | 20 ✓                            |                                 |                    | 330.6337                |
| 120176788                         | KAISER<br>ALUMINUM  |                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                             | 20 ✓                            |                                 |                    | 330.6337                |

SP15-01-23



**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/  
CERTIFICATE OF CONFORMANCE

Page 2 of 2

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

Name:

SEP 22 2015



825-09-23

|                                                                                                      |
|------------------------------------------------------------------------------------------------------|
| <b>SHIP TO:</b><br>A M CASTLE & CO<br>14001 ORANGE AVE<br>P.O. BOX 1402<br>PARAMOUNT, CA 90723       |
| <b>SOLD TO:</b><br>AM CASTLE & CO- SOLD TO<br>1420 KENSINGTON RD<br>SUITE 220<br>OAK BROOK, IL 60523 |

# KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

## CERTIFIED TEST REPORT

Serial Number  
4384389

|                               |                         |                                 |                                            |                                             |
|-------------------------------|-------------------------|---------------------------------|--------------------------------------------|---------------------------------------------|
| CUSTOMER PO NUMBER:<br>329027 | WORK PACKAGE:           | CUSTOMER PART NUMBER:<br>752241 | SHIP RUN/LOAD:<br>103272/17                | GOV'T CONTRACT NUMBER:                      |
| KAISER ORDER NO:<br>1190937   | LINE ITEM:<br>1         | SHIP DATE:<br>24-JUL-2015       | ALLOY:<br>7075                             | CLAD:<br>BARE                               |
|                               |                         | TEMPER:<br>T7351                | PRODUCT DESCRIPTION:<br>KaiserSelect Plate |                                             |
| WEIGHT SHIPPED:<br>7244 LB    | QUANTITY:<br>4 PCS EST. | TRUCK B/L #:<br>2055128         | GUAGE:<br>2.5000 IN<br>(63.5000 MM)        | DIAMETER/WIDTH:<br>48.500 IN<br>(1231.9 MM) |
|                               |                         |                                 | LENGTH:<br>144.500 IN<br>(3670.3 MM)       |                                             |

MHU 1914229: LOT 143304B4: 2 pieces;  
MHU 1914231: LOT 143304B4: 2 pieces;

DAS  
14 1509/29  
9-89

### Certified Specifications

AMS 4078/RevJ  
ASTM B 209/Rev14  
BSS 7055/RevB  
DPS 4.713/RevAK  
MMS 159/RevT

AMS-QQ-A-250/12/RevA  
ASTM B 594/Rev13  
CMMP 025/RevU  
GAMPS 9101/RevB/AmdSCN1  
PS 21211/RevM

AMS-STD-2154/RevA  
BAC 5439/RevJ  
CSTI 006/RevE  
GSS16100/RevG/Amd1

Test Code: 4297

### Test Results

Lot: 143304B4 Cast 841

Drop 15

Ingot 4



Melted in USA

(ASTM E8/B557)  
(EN 2002-1)

|          |                 |                                   |                                                  |                                               |                             |
|----------|-----------------|-----------------------------------|--------------------------------------------------|-----------------------------------------------|-----------------------------|
| Tensile: | Temper<br>T7351 | Dir / # Tests<br>LT / 2 (Min:Max) | Ultimate KSI (MPA)<br>69.1 : 69.2<br>(476 : 477) | Yield KSI (MPA)<br>57.6 : 58.1<br>(397 : 401) | Elongation %<br>12.0 : 12.1 |
|----------|-----------------|-----------------------------------|--------------------------------------------------|-----------------------------------------------|-----------------------------|

(ASTM E1004)  
(EN 2004-1)

|                      |          |          |
|----------------------|----------|----------|
| Conductivity %IACS : | 40.2 Min | 40.4 Max |
| (MS/M) :             | 23.3 Min | 23.4 Max |

(ASTM E1251)

|             |      |      |     |      |     |      |     |      |      |      |          |
|-------------|------|------|-----|------|-----|------|-----|------|------|------|----------|
| Chemistry:  | SI   | FE   | CU  | MN   | MG  | CR   | ZN  | TI   | V    | ZR   | OTHER    |
| Actual(wt%) | 0.08 | 0.19 | 1.5 | 0.04 | 2.5 | 0.20 | 5.7 | 0.03 | 0.01 | 0.01 | TOT 0.05 |



Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

## CERTIFIED TEST REPORT

Serial Number  
4384389

### ALLOY LIMITS

|          | SI   | FE   | CU  | MN   | MG  | CR   | ZN  | TI   | V    | ZR   | OTHER | MAX  |
|----------|------|------|-----|------|-----|------|-----|------|------|------|-------|------|
| 7075     |      |      |     |      |     |      |     |      |      |      |       |      |
| MIN(wt%) | 0.00 | 0.00 | 1.2 | 0.00 | 2.1 | 0.18 | 5.1 | 0.00 | 0.00 | 0.00 | EACH  | 0.05 |
| MAX(wt%) | 0.40 | 0.50 | 2.0 | 0.30 | 2.9 | 0.28 | 6.1 | 0.20 | 0.05 | 0.05 | TOT   | 0.15 |

Aluminum Remainder

### ORDER COMMENTS

AMC CA-154138 R 6  
AMS 4078,AMS QQ-A-250/12,AMS STD-2154,A  
STM B209,ASTM B594,BS  
S 7055,CMMP 025,CSTI 006,DPS 4.713,GAMP  
S 9101,MMS 159,PS 212

11

### TEST NOTES

Metal represented by this test report was 100% immersion ultrasonically tested from one side with 3mm dead zones top and bottom and meets the Class A and Class B requirements of all specifications referenced on this test report. No surface marking of sonic indications is performed.

### CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC (Kaiser), is ISO-9001:2008/AS9100C certified and hereby certifies that all material shipped under this order:

- \* has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements.
- \* was melted in the United States of America or a qualifying country per DFARS 225.872-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.
- \* has been thermally processed in compliance with AMS 2772, where applicable.
- \* is mercury free, within the limits of detection of ASTM E1251 ( $\leq 1$  ppm).
- \* is in compliance with RoHS 2, European Union Directive 2011/65/EU.
- \* is in compliance with and regularly monitors any updates to the European Chemical Agency, ECHA, REACH regulations, (EC) n°1907/2006.
- \* is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

JAMES HEMENWAY, LABORATORIES SUPERVISOR

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6101-007  
 DATE: 15/09/29

PO / BATCH NO: 29713/130766

MATERIAL CERT REC'D: YB1  
 QUANTITY RECEIVED: 40  
 QUANTITY INSPECTED: 40  
 QUANTITY REJECTED: \_\_\_\_\_

THICKNESS ORDERED: 7.75018.25012.50  
 THICKNESS RECEIVED: 7.87518.37512.505  
 SHEET SIZE ORDERED: \_\_\_\_\_  
 SHEET SIZE RECEIVED: \_\_\_\_\_

| DESCRIPTION                                        | NCR<br>(Check<br>Y/N)                                                            | COMMENTS |
|----------------------------------------------------|----------------------------------------------------------------------------------|----------|
| SURFACE DAMAGE                                     | Y <input checked="" type="radio"/> N <input type="radio"/>                       |          |
| CORRECT FINISH                                     | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| CORROSION                                          | Y <input type="radio"/> N <input checked="" type="radio"/>                       |          |
| CORRECT GRAIN DIRECTION                            | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| CORRECT MATERIAL                                   | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| CORRECT THICKNESS                                  | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| PHOTO REQUIRED                                     | Y <input type="radio"/> N <input checked="" type="radio"/>                       |          |
| CORRECT MATERIAL                                   | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| CORRECT REF # TO LINK CERT                         | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| CORRECT MATERIAL IDENTIFICATION                    | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| CORRECT M# ON THE MATERIAL                         | <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> |          |
| DOES THIS MATERIAL REQUIRE<br>ENGINEERING SIGN OFF | Y <input type="radio"/> N <input checked="" type="radio"/>                       |          |
| DOES THIS REQUIRE AN<br>EXTRUSION REPORT           | Y <input type="radio"/> N <input checked="" type="radio"/>                       |          |

| CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.<br>RECORD RESULTS BELOW |     |     |       |       |
|------------------------------------------------------------------------------------|-----|-----|-------|-------|
| TYPE OF MATERIAL                                                                   | HRC | HRB | DUR A | DUR D |
| SIZE OF TEST SAMPLE                                                                |     |     |       |       |
| HARDNESS / DUROMETER READING                                                       |     |     |       |       |

*testers located in the Quality Office*

| QC 18 INSPECTION                                          |                                     | ENGINEERING SIGNOFF (if required) |  |
|-----------------------------------------------------------|-------------------------------------|-----------------------------------|--|
| INSPECTED BY: <u>DAS 14 9-89</u><br>DATE: <u>15/09/29</u> | SIGNED OFF BY: _____<br>DATE: _____ |                                   |  |

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# MATERIAL RECEIPT INSPECTION FORM

## INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

- 1- VERIFY STOCK TO DART PURCHASE ORDER
- 2- MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
  - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
- 3- VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc.
- 4- VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
- 5- VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
- 6- REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

## INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

- 1- VERIFY TO DART SUPPLIED DRAWING
  - 2- SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
  - 3- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
  - 4- VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING
- AFTER MATERIAL PASSES INSPECTION**
- 5- HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20pcs FOR FULL INSPECTION
  - 6- INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

## INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

- 1- VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
- 2- INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
- 3- INSPECT MATERIAL AS PER THE EXTRUSION REPORT
  - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
  - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
  - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
  - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
  - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
- 4- IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE 2, ...) AND W/O# AND PO#
- 5- RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER